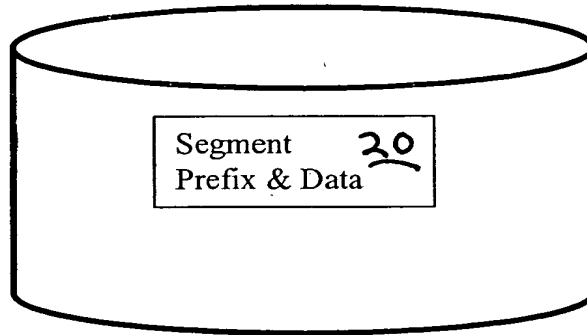


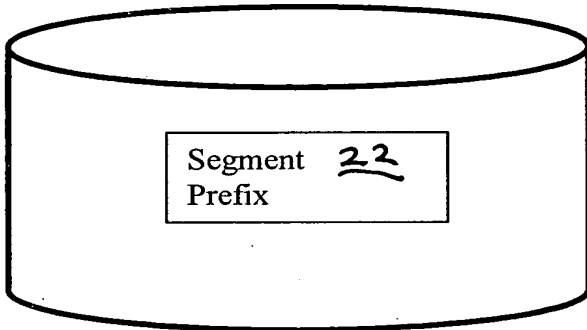
Current IMS Database



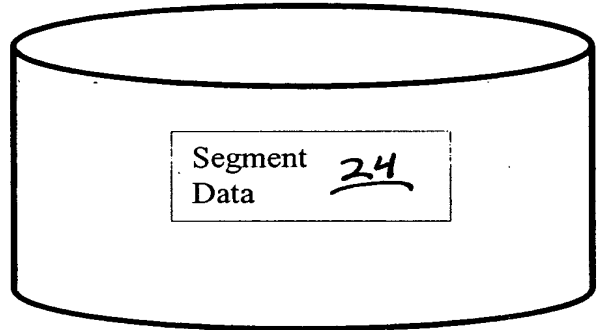
DS Group

Fig 1A  
(Prior Art)

Invention Database



Directory DS



Segdata DS

Fig 1B

### Layout of Segment in Directory Dataset

Segment Prefix <u>26</u>		Segment Data <u>28</u>	
Seg Code & Delete Byte <u>30</u>	Prefix Pointers <u>32</u>	Pointer to Seg Data <u>34</u>	Metadata
			Seg Key <u>37</u> Born-On-Date <u>36</u>

**Figure 2A. Split Segment Composition – Prefix Portion with Metadata in segment data portion**

### Layout of Segment in Segdata Dataset

Segment Prefix <u>26</u>			Seg Data <u>28</u>
Seg Code & Delete Byte <u>30</u>	Prefix Pointers <u>32</u>	Metadata	
		Seg Key <u>37</u> Born-On-Date <u>36</u>	<u>34</u> Pointer to Seg Data

**Figure 2B. Split Segment Composition – Prefix Portion with Metadata in segment prefix portion**

Layout of Segment in Segdata Dataset

Segment Prefix <u>40</u>	Segment Data <u>42</u>	Trans- parent <u>44</u>
Seg code & delete byte <u>46</u>	User Data <u>48</u>	Born on Date <u>50</u>

Fig. 3

DBD NAME=IVPDB1, ACCESS= (HIDAM, OSAM)

DIR DD1=DFSIVD1, SIZE=2048, UOW= (500, 50, 10)

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DATASET DD1=DFSIVD1A, DEVICE=3380, SIZE=2048

SEGM NAME=A1111111, PARENT=0, BYTES=40, RULES= (LLV, LAST) , PTR= (TB, CTR)

FIELD NAME= (A1111111, SEQ, U) , BYTES=010, START=00001, TYPE=C

FIELD NAME=A9999999, BYTES=010, START=00011, TYPE=C

LCHILD NAME= (A1, IVPDB1I) , POINTER=INDX, RULES=LAST

LCHILD NAME= (A1X, IVPDB1X) , POINTER=INDX

XDFLD NAME=AXXXXXXX, SEGMENT=A1111111, SRCH= (A9999999)

LCHILD NAME= (C1X, IVPDB1Z) , POINTER=INDX

XDFLD NAME=CXXXXXXX, SEGMENT=C1111111, SRCH= (C9999999)

DATASET DD1=DFSIVD1B, DEVICE=3380, SIZE=4096

SEGM NAME=B1111111, PARENT=A1111111, BYTES= (1000, 50) ,  
RULES= (LLV, LAST) , PTR= (TB)

X

FIELD NAME= (B1111111, SEQ, M) , BYTES=010, START=00003, TYPE=C

FIELD NAME=/SXB1

LCHILD NAME= (B1X, IVPDB1Y) , POINTER=INDX

XDFLD. .NAME=BXXXXXXX, SEGMENT=B1111111, SRCH= (B1111111) , SUBSEQ= (/SXB1)

DATASET DD1=DFSIVD1C, DEVICE=3380, SIZE=8192

SEGM NAME=C1111111, PARENT=B1111111, COMPRTN= (DFSKMPX0, DATA, INIT) ,  
RULES= (LLV, LAST) , PTR= (TB) , BYTES= (8000, 50)

X

FIELD NAME= (C1111111, SEQ, U) , BYTES=010, START=00003, TYPE=C

FIELD NAME=C9999999, BYTES=010, START=00011, TYPE=C

DIRGEN

DBDGEN

FINISH

END

Figure 4A Sample HIDAM DBD

DBD NAME=IVPDB2, ACCESS=HDAM, RMNAME= (DFSHDC40, 4, 1000)

DIR DD1=DFSIVD2, UOW= (100, 10)

DATASET DD1=DFSIVD2A, DEVICE=3380, SIZE=2048

SEGM NAME=A1111111, PARENT=0, BYTES=40, RULES= (LLL, LAST), X  
COMPRTN= (DFSKMPX0, DATA, INIT)

FIELD NAME= (A1111111, SEQ, U), BYTES=010, START=000.01, TYPE=C

DATASET DD1=DFSIVD2B, DEVICE=3380, SIZE=4096

SEGM NAME=B1111111, PARENT=A1111111, BYTES= (1000, 50), X  
RULES= (LLV, LAST), PTR= (TB)

FIELD NAME= (B1111111, SEQ, U), BYTES=010, START=000.03, TYPE=C

DATASET DD1=DFSIVD2C, DEVICE=3380, SIZE=8192

SEGM NAME=C1111111, PARENT=B1111111, COMPRTN= (DFSKMPX0, DATA, INIT),  
RULES= (LLV, LAST), PTR=TB, BYTES=8000

FIELD NAME= (C1111111, SEQ, U), BYTES=010, START=000.01, TYPE=C

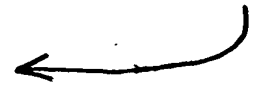
DIRGEN

DBDGEN

FINISH

END

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**Figure 4B Sample HDAM DBD**

Secondary Index

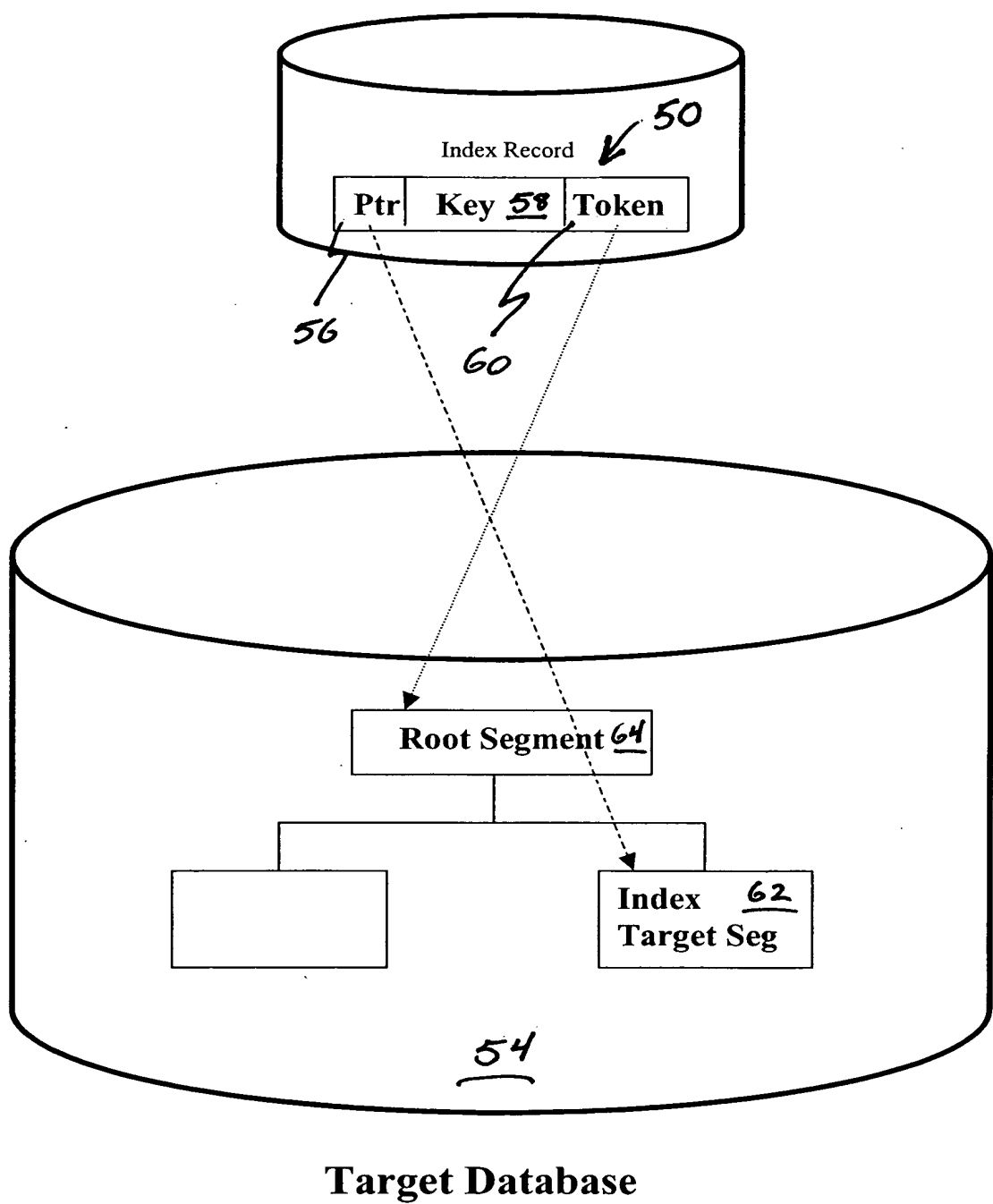
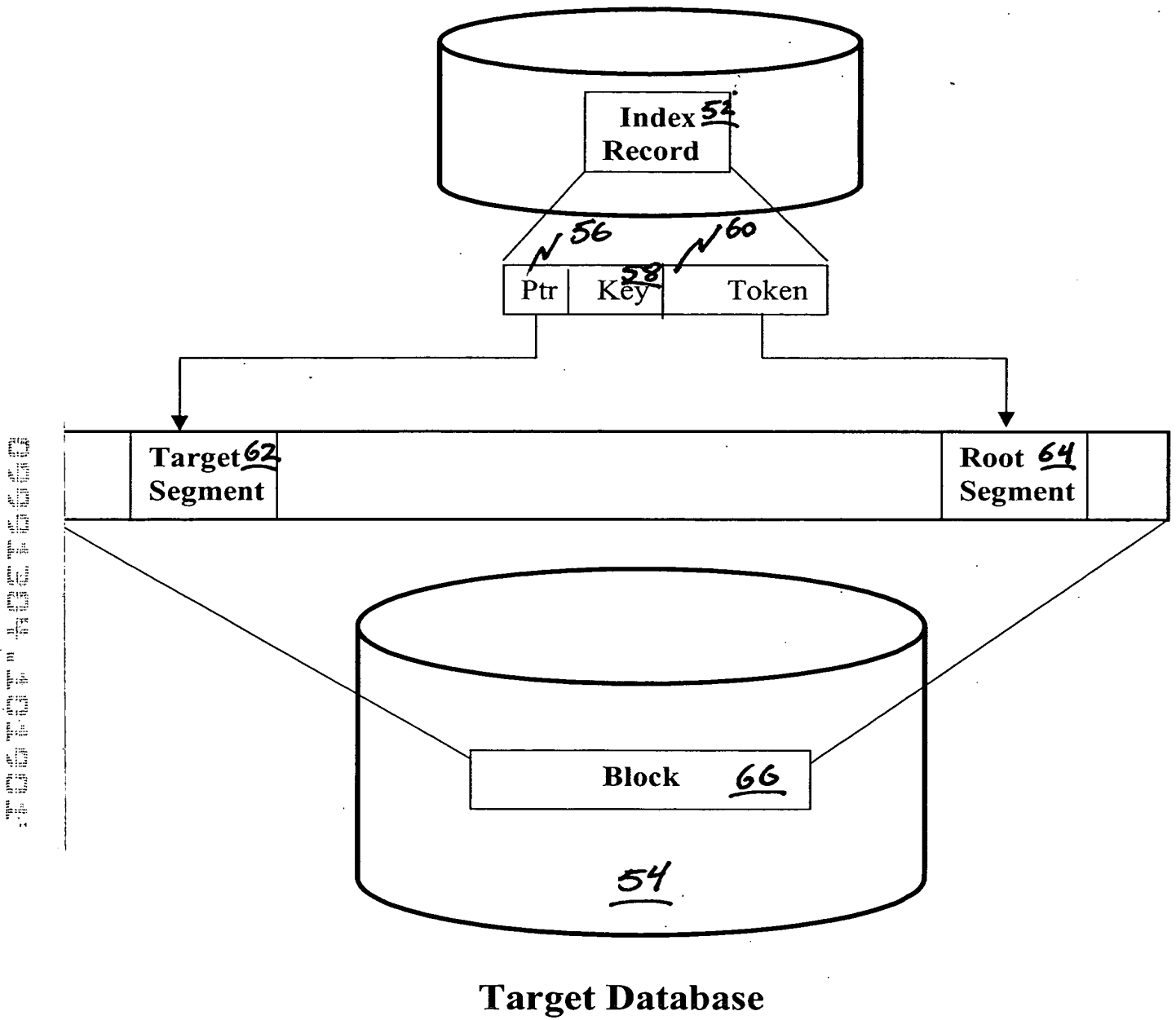


Figure 5 Secondary Index Architecture

## Secondary Index



**Figure 6 Secondary Index Before Reorganizing**

## Secondary Index

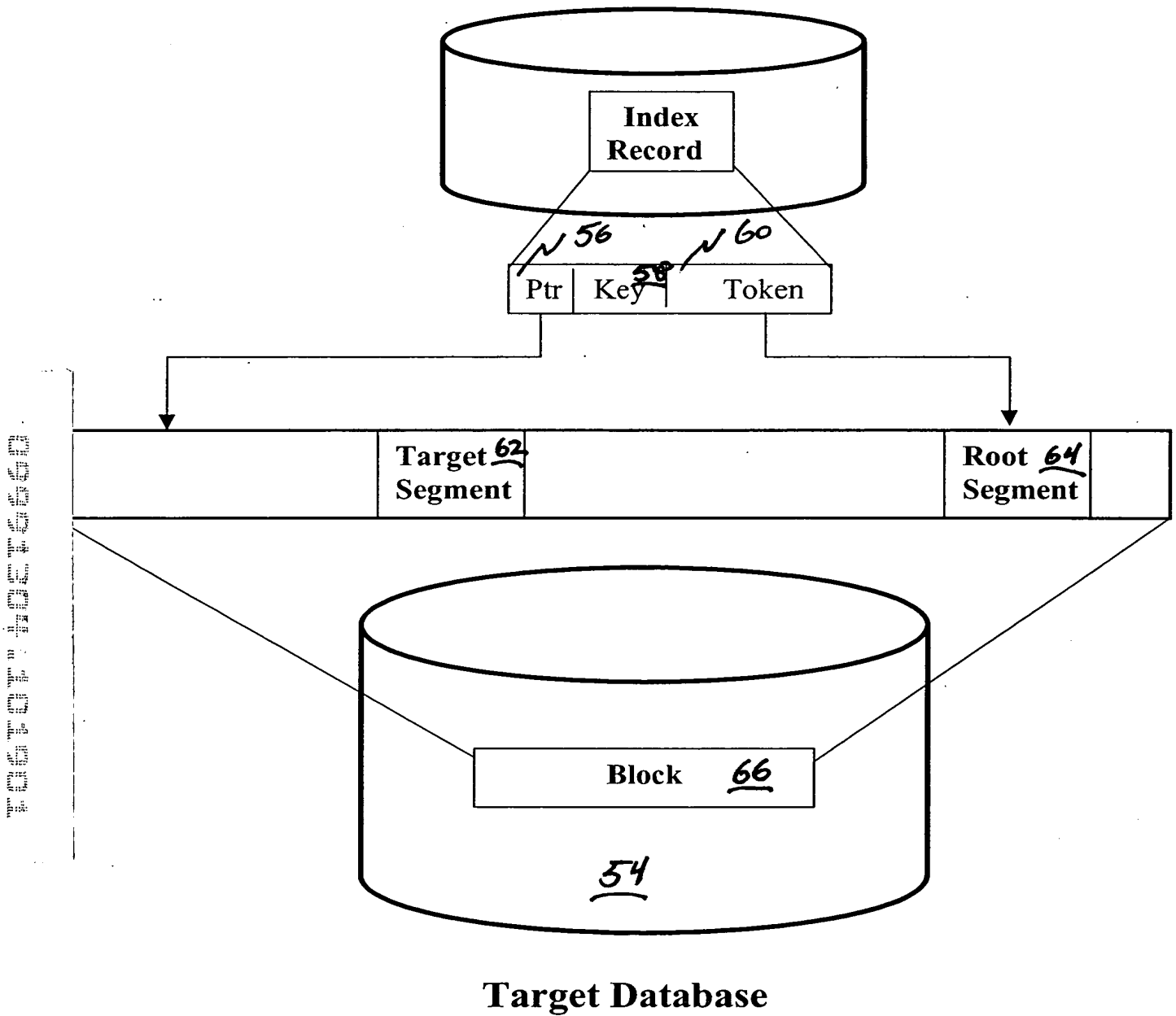
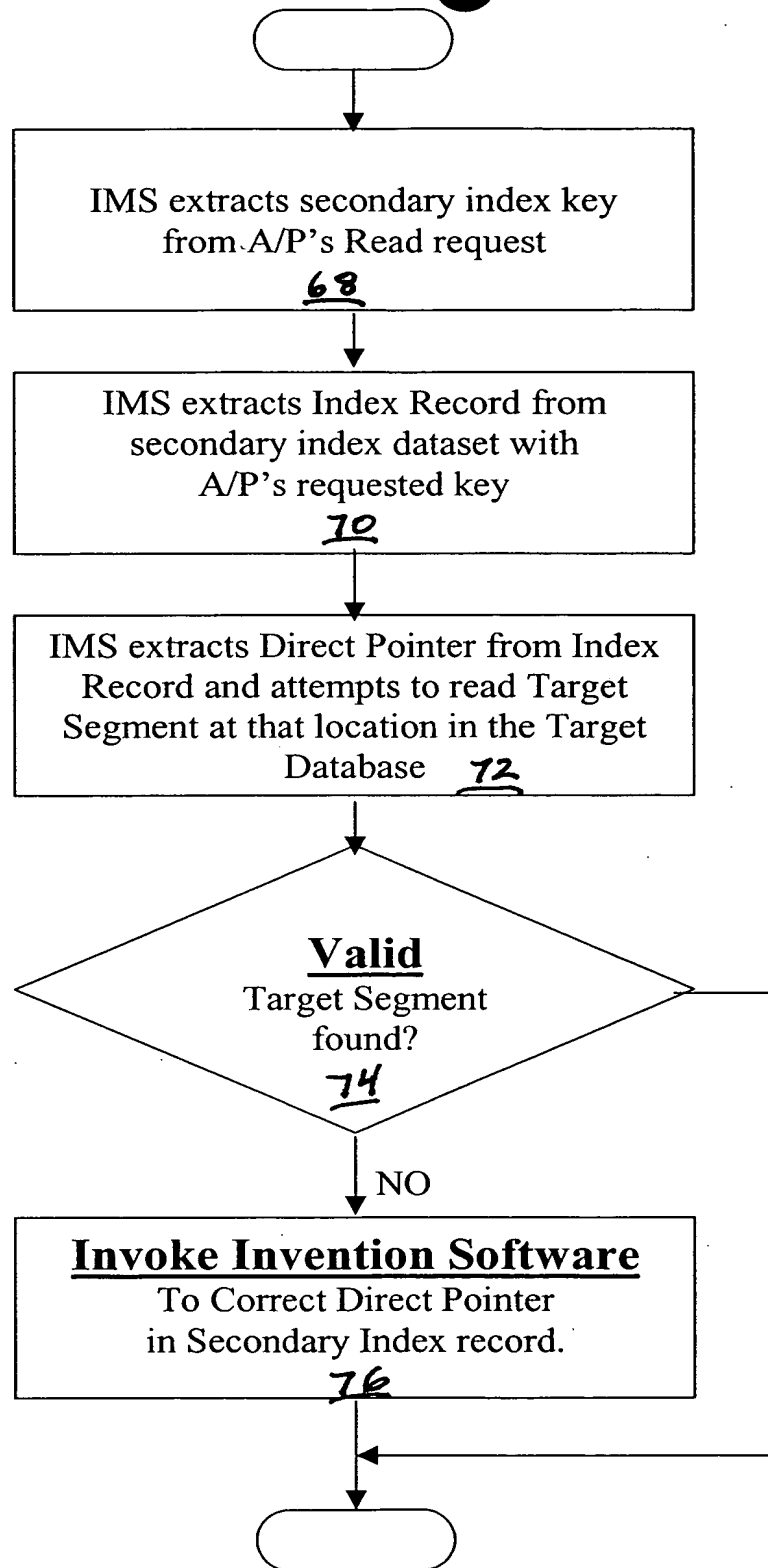
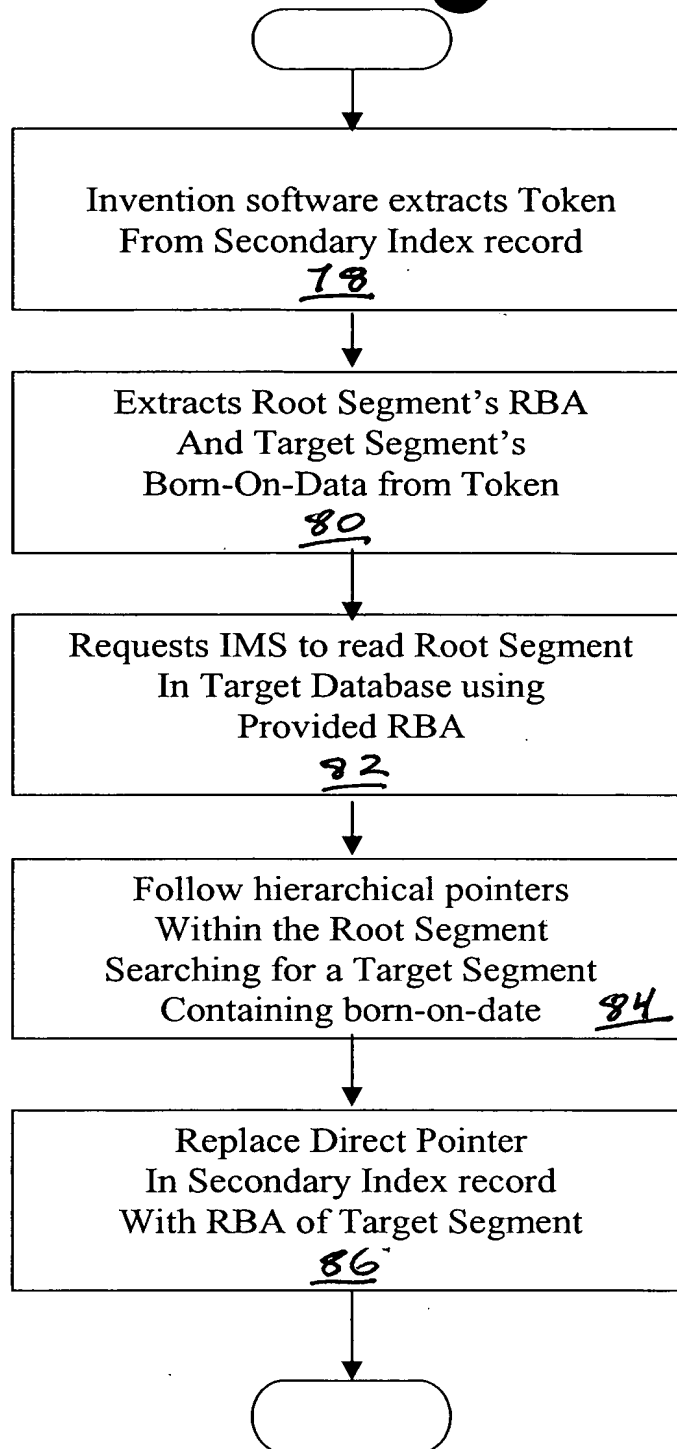


Figure 7 Secondary Index After Reorganizing





**Figure 8 Retrieving a Target Segment via a Secondary Index**



**Figure 9 Correcting Direct Pointer in a Secondary Index**

ACB Library

DMB<sub>90</sub>

Database Load Program

DMB Pool

DMB<sub>98</sub>

Invention  
Software

Invention Database

DMB<sub>106</sub>

Directory DS

Figure 10 Saving the Database Definition at DB Load Time

ACB Library

DMB<sub>90</sub>

Database Processing Program

DMB Pool

DMB<sub>98</sub>

Invention  
Software

100

Invention Database

DMB<sub>106</sub>

104

Directory DS

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**Figure 11 Checking the Database Definition at DB Processing Time**

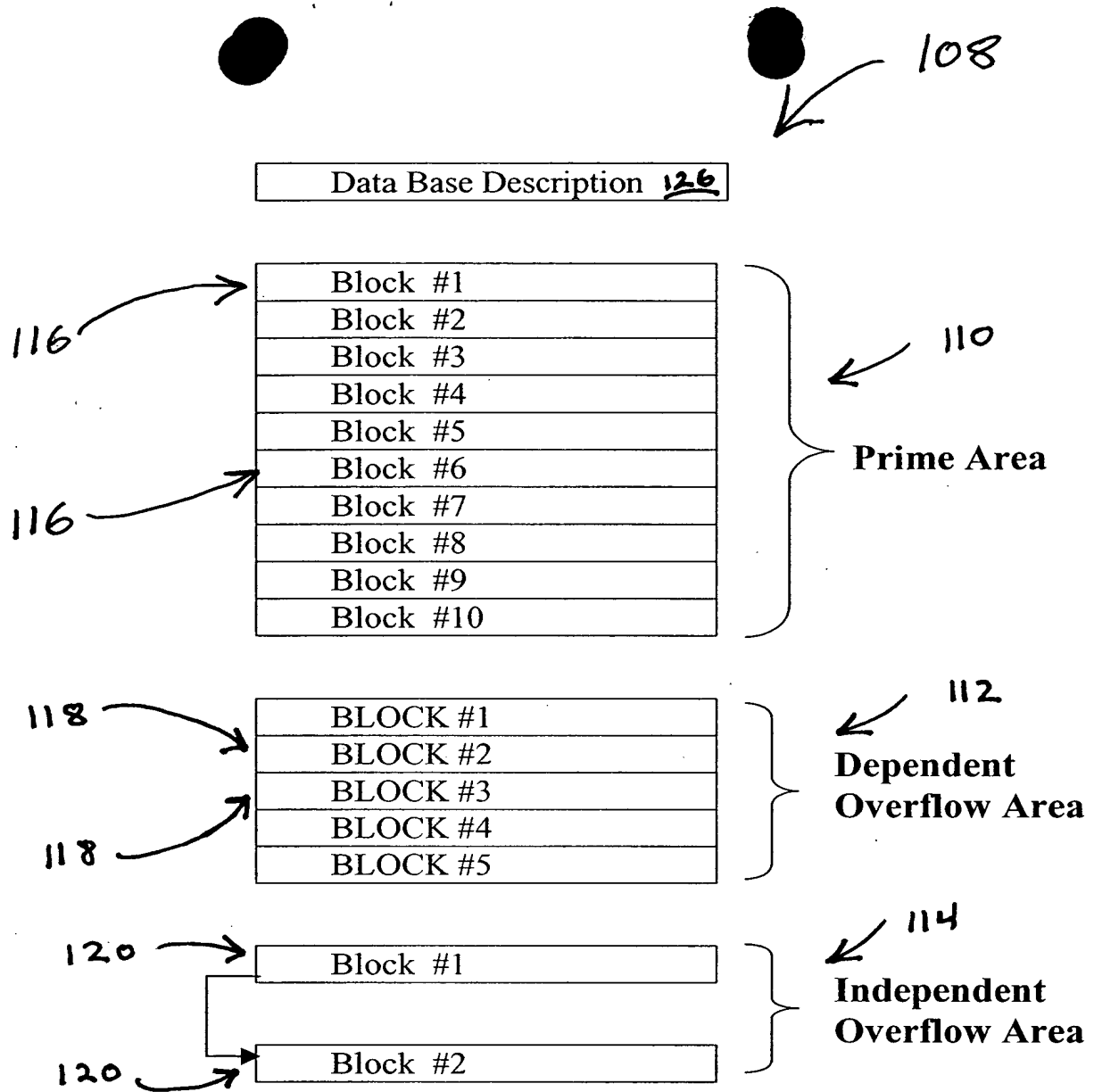


Figure 12. Unit Of Work (UOW) Architecture

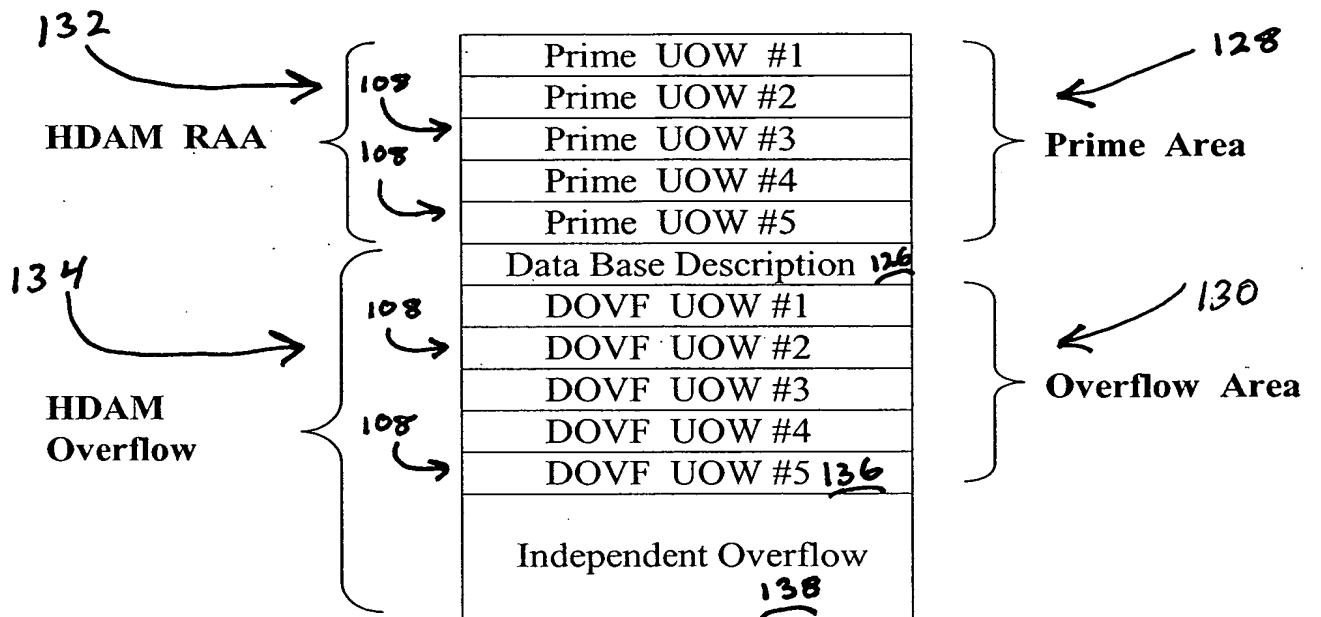
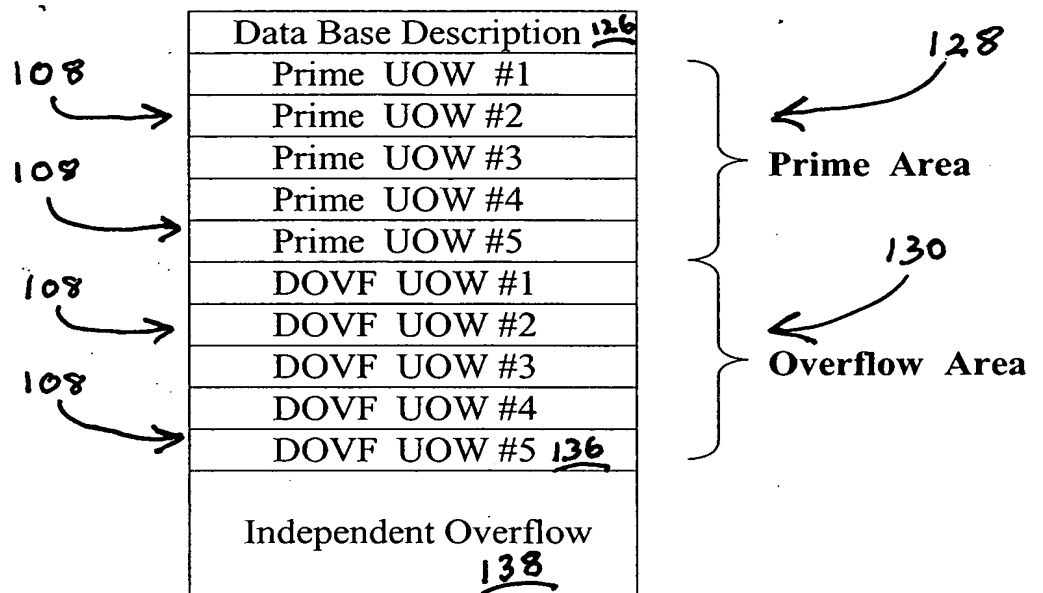
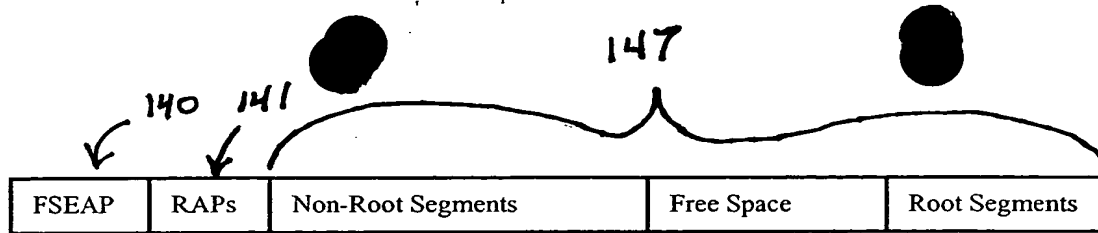


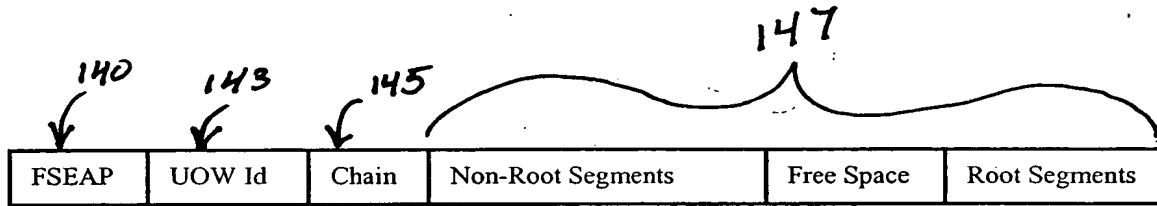
Figure 13. HDAM UOW Architecture



**Figure 14. HIDAM UOW Architecture**



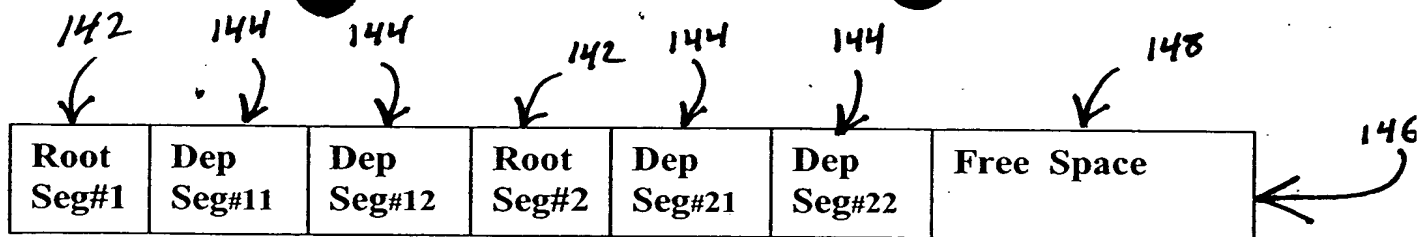
**Figure 15. Prime & DOVF Block Composition**



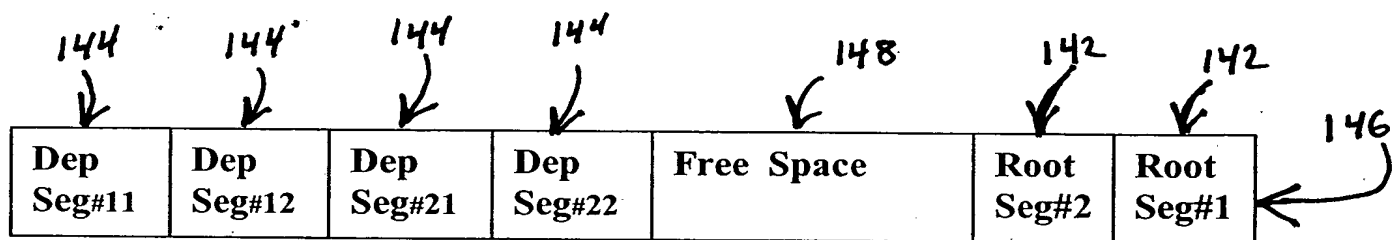
**Figure 16. IOVF Block Composition**

140 141 143 145 147

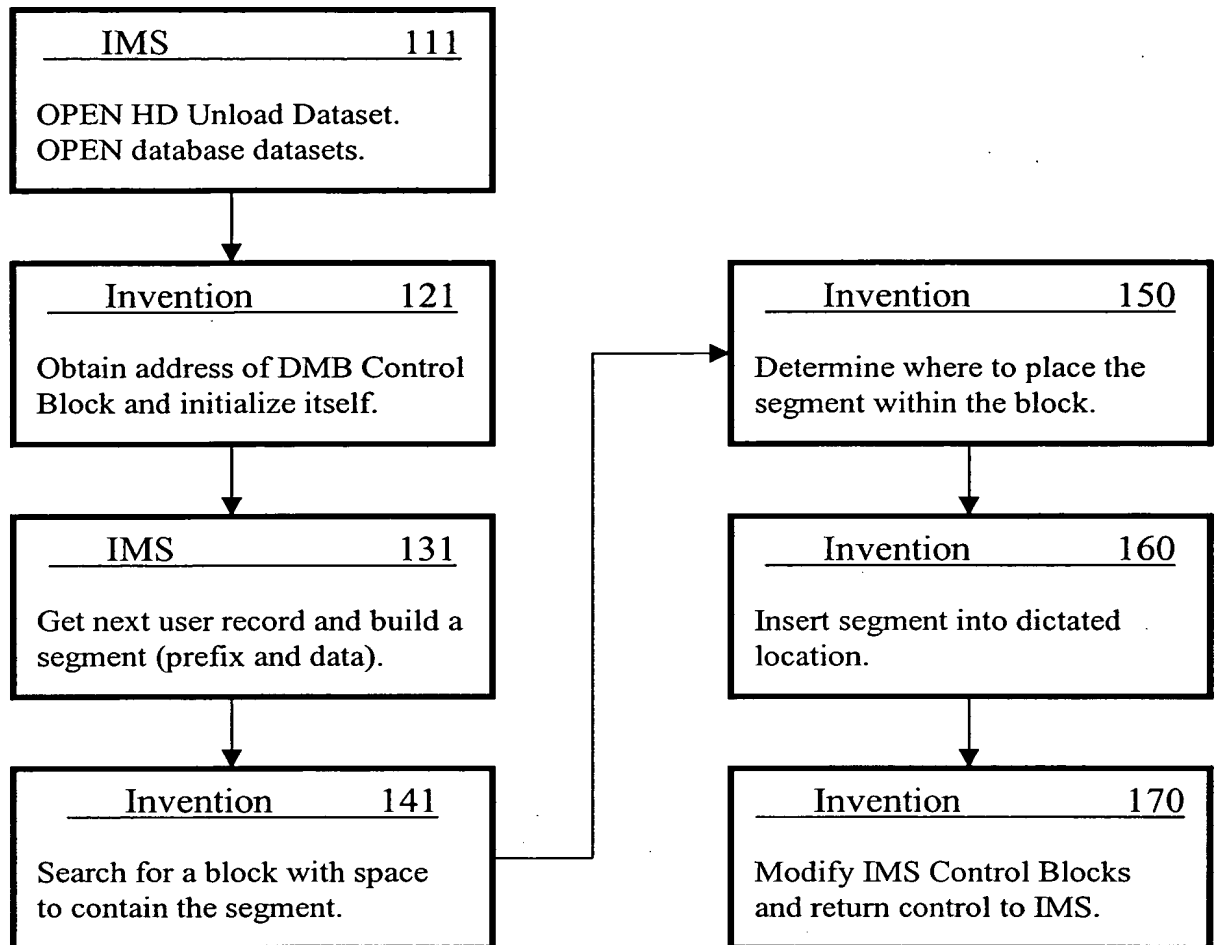




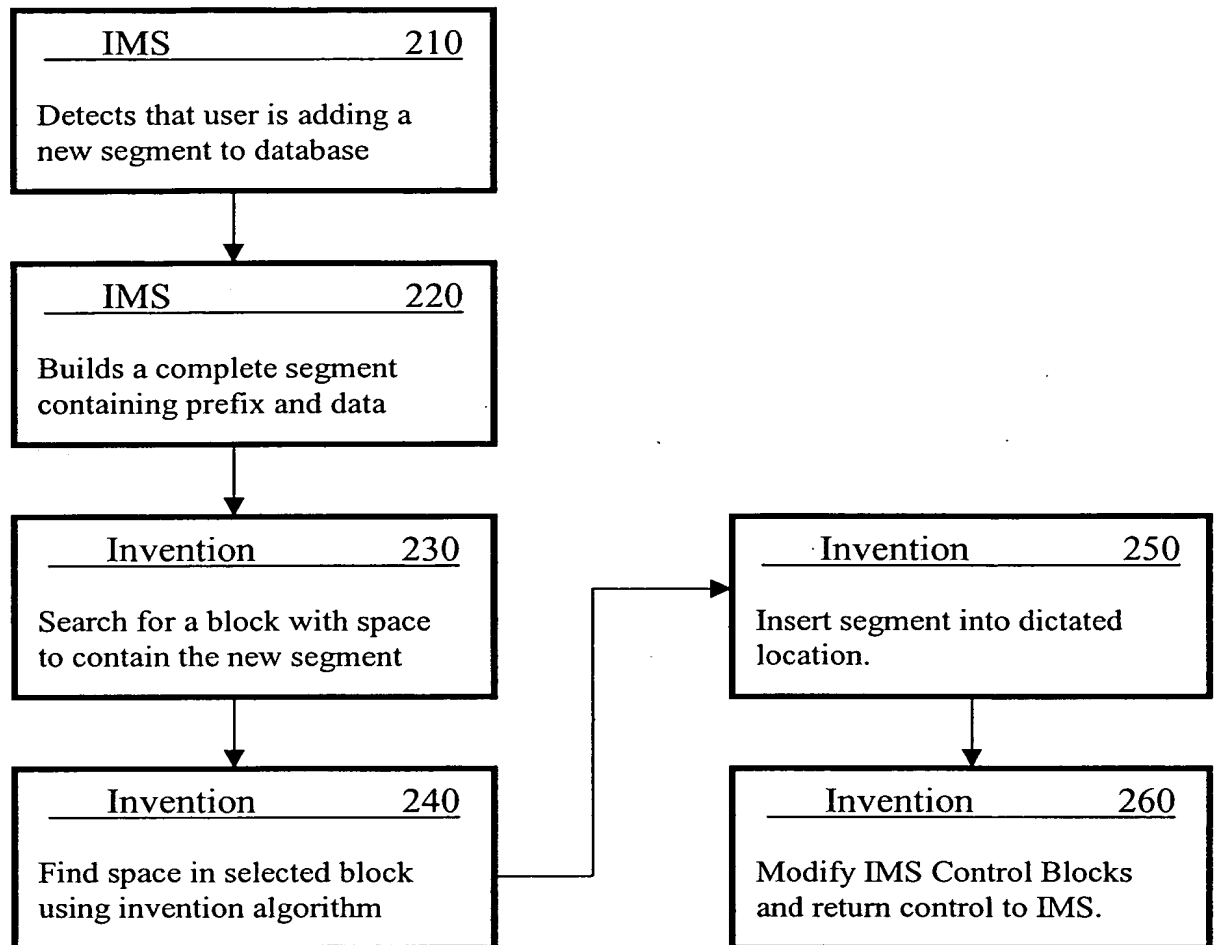
**Figure 17 Block Composition Using IMS' Space Management**



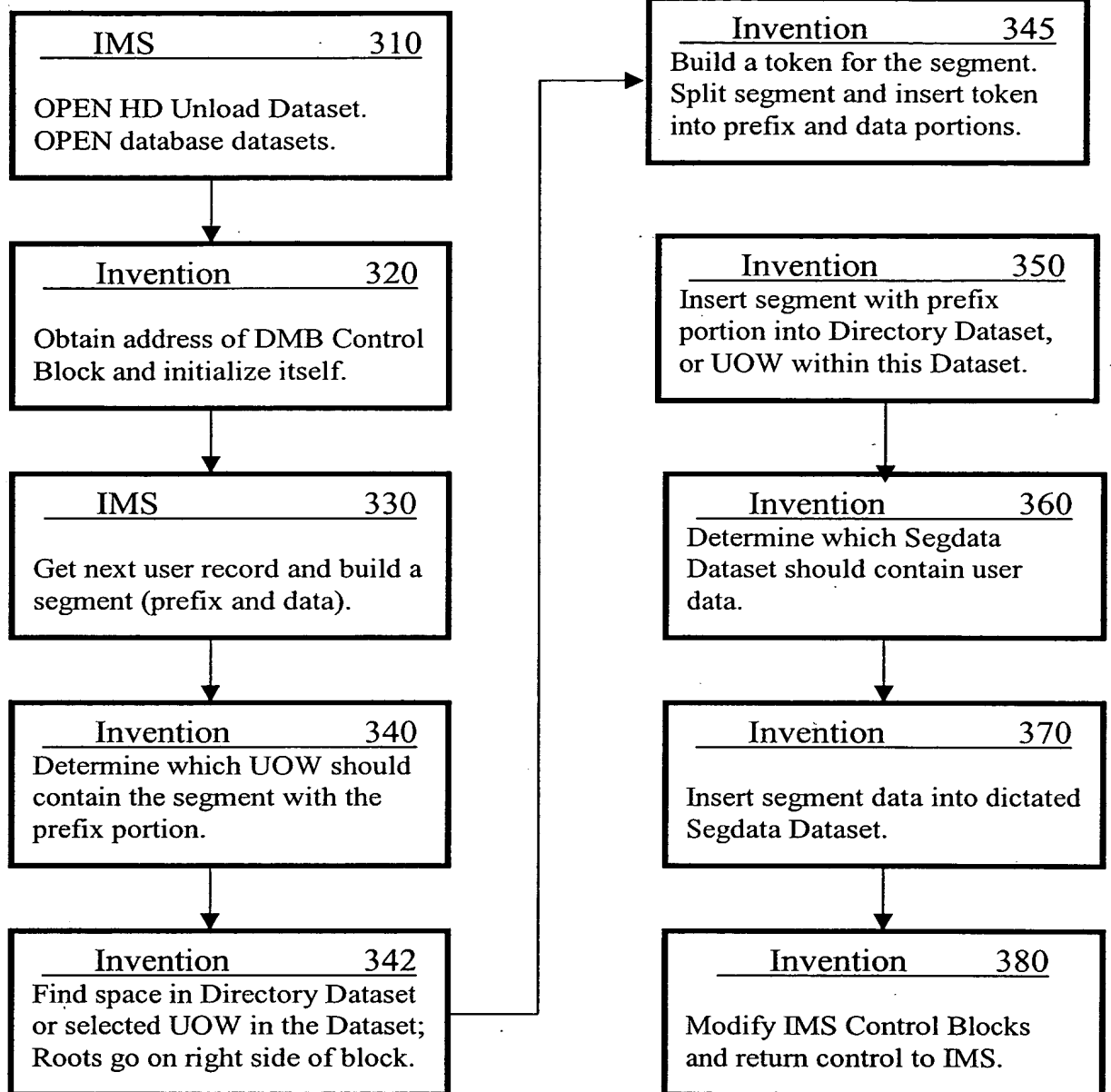
**Figure 18 Block Composition Using Invention's Space Management**



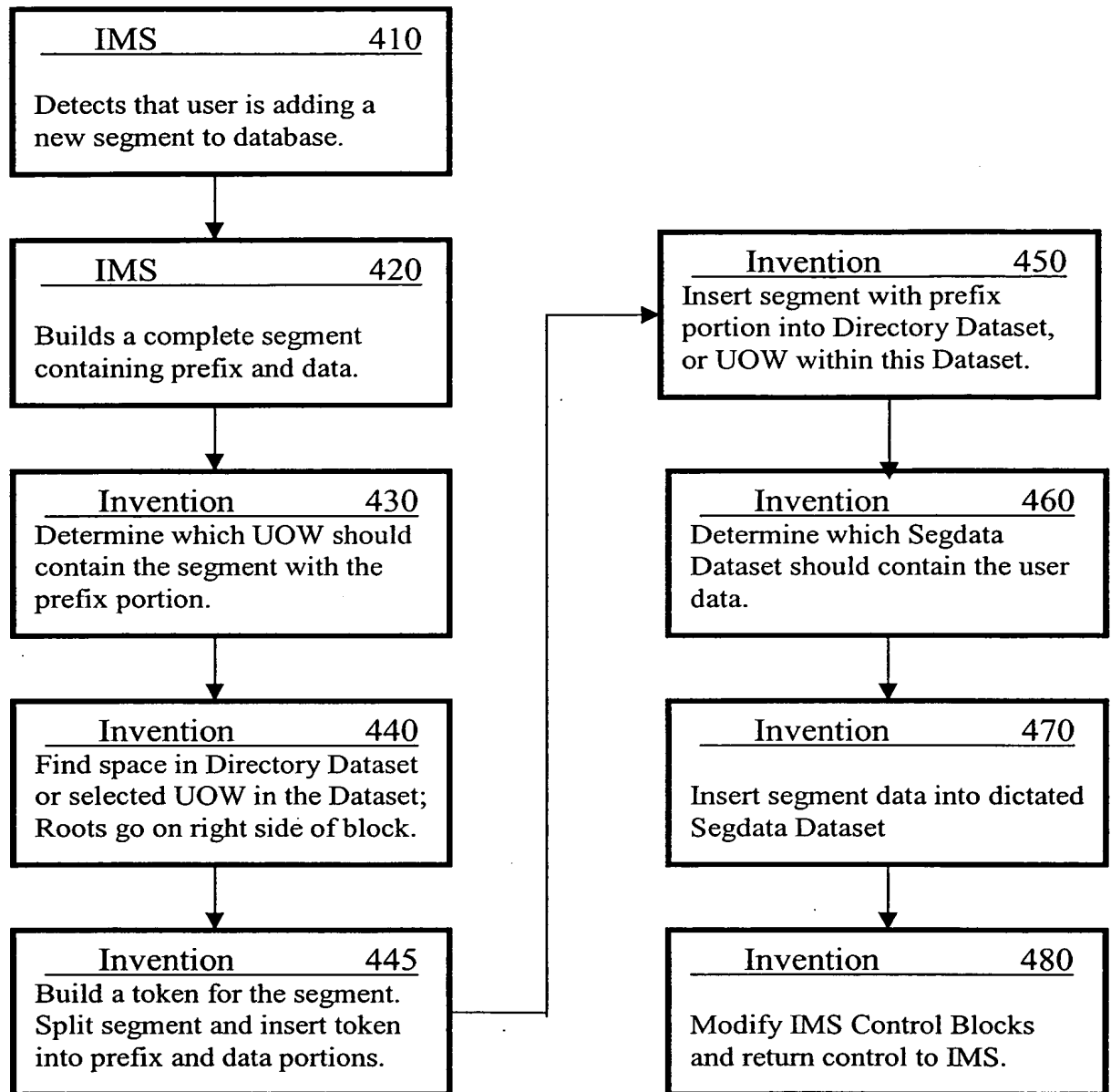
**Figure 19 Space Management at Database Load Time**



**Figure 20 Space Management at Database Update Time**



**Figure 21. Space Management at Database Load Time**



**Figure 22. Space Management at Database Update Time**